CONFERENCE ON PEST CONTROL IN FOOD INDUSTRY

May 15, 1974

tario

Ministry of the Environment

The Honourable
William G. Newman,
Minister

Everett Biggs,
Deputy Minister

Ontario

Ministry of the
Environment

PESTICIDES CONTROL SECTION

LOCATED AT: 1 St. Clair Ave. W.
TELEPHONE: (416) 965-2401

CONFERENCE

ON

PEST CONTROL IN FOOD INDUSTRY

MAY 15th, 1974

AT

MAC DONALD BLOCK

ONTARIO - ROOM

QUEEN'S PARK

SPONSORED BY:

ONTARIO MINISTRY OF THE ENVIRONMENT

PESTICIDES CONTROL SECTION

IN COOPERATION WITH:

AMERICAN ASSOCIATION OF CEREAL CHEMISTS
BAKERY COUNCIL OF CANADA
CANADIAN INSTITUTE OF FOOD SCIENCE & TECHNOLOGY - TORONTO SECTION
ENVIRONMENTAL MANAGEMENT ASSOCIATION - TORONTO CHAPTER
GROCERY PRODUCTS MANUFACTURERS OF CANADA
ONTARIO MILK AND FOOD SANITARIANS ASSOCIATION

J. G. Kurys
Secretary

E. E. Nelson
Chairman of the Conference

PROGRAMME

CHAIRMAN: J. G. KURYS, P.Eng.

8.00 - 9.00 a.m. - REGISTRATION

9.00 - 9.30 a.m. - ONTARIO PESTICIDES LEGISLATION
PESTICIDES ACT & EXISTING REGULATIONS:
PERTAINING TO FOOD INDUSTRY

Mr. J. J. Onderdonk
Head, Technical Support Unit
Pesticides Control Section
Ministry of the Environment

9.30 - 10.00 a.m. - FEDERAL REGULATIONS: PERTAINING TO FOOD INDUSTRY

Mr. Phil Glass
Food Inspection Services
Health Protection Branch
Health & Welfare Canada

10.00 - 10.30 a.m. - COFFEE

10.30 - 11.00 a.m. - THE ROLE OF PUBLIC HEALTH INSPECTOR
IN FOOD INDUSTRY

Mr. W. Kempa
Chairman
Public Health Inspection Dept.
Community Service Division
Ryerson Polytechnical Institute

11.00 - 11.30 a.m. - WHAT POST SECONDARY INSTITUTIONS CAN
OFFER IN TRAINING FOR THE FOOD INDUSTRY

Dr. B. Brown
Director
Food Technology Division
George Brown College of Applied Arts & Technology

L U N C H

2.00 - 4.00 p.m. - PANEL DISCUSSION AND QUESTIONS PERIOD

MODERATOR: Dr. Bertha Smith
Chairwoman
C.I.F.S.T. - Toronto Section

PANELISTS: Mr. J. J. Onderdonk
Head, Technical Support Unit
Pesticides Control Section
Ministry of the Environment

Mr. Herm Blackwood
Food Inspection Services
Health Protection Branch
Health & Welfare Canada

Mr. W. Kempa
Chairman
Public Health Inspection Dept.
Community Service Division
Ryerson Polytechnical Institute

Dr. B. Brown
Director
Food Technology Division
George Brown College of Applied
Arts & Technology

INTRODUCTION OF THE

FOOD CONFERENCE

BY

J. G. KURYS, Ph.D., P.Eng.

The Ontario Ministry of the Environment Pesticides Control Section in cooperation with the following associations; American Association of Cereal Chemists, Bakery Council of Canada, Canadian Institute of Food Science and Technology - Toronto Section, Environmental Management Association - Toronto Chapter, Grocery Products Manufacturers of Canada and Ontario Milk & Food Sanitarians Association, has arranged to have one day conference on Pest Control in the Food Industry to be held on Wednesday, May 15, 1974 at the Mac Donald Block, Queen's Park. The purpose of this Conference is to outline the existing and forthcoming pesticides legislation at both levels of government as related to the food industry in the Province of Ontario.

The programme in the morning offers 25 minutes presentation by speakers, from government and Higher Learning Institutions following with panel discussion in the afternoon. This type of arrangement will give the participants of the Conference an opportunity to ask some questions on related subjects.

CONFERENCE ON PEST CONTROL IN THE FOOD INDUSTRY

TORONTO, ONTARIO

MAY 15, 1974

WELCOMING REMARKS

E. E. Nelson
Director of Sanitation
George Weston Limited
Toronto, Ontario

Changes are taking place in many of the laws and regulations which apply to the food industry. One of the changes receiving special attention at this time is the use of pesticides in food plants and pesticide residues in food products.

Several different government agencies and departments have laws and regulations applying to the use and application of pesticides in food plants. It is sometimes difficult to be familiar with all the regulations as changes are taking place and proposed changes are being considered.

It would appear that all the regulations have three basic objectives:

A. To produce food products free of contamination by insects, rodents and other pests.

B. To prevent the possibility of contamination of any food products with chemicals used in the pest control program.

C. To ensure that only permitted chemicals are used by qualified applicators in such a manner as not to endanger the person applying the pesticides, other persons in the food plant or the environment.

Those of us in the food industry want to be informed and aware of the regulations and provide food products free of any contamination and in compliance with all laws and regulations. Therefore, it is apparent that the objectives of the various government agencies and departments and the food industry are really the same.

It was felt that a conference of this type, jointly sponsored by food industry organizations and the various government departments and agencies, would be of mutual benefit as it would provide an opportunity for the Health Protection Branch and the Ministry of the Environment to explain the laws and regulations. At the same time, it would also give the food industry representatives an opportunity to hear first hand from officials of the government agencies regarding present regulations and any proposed changes being considered. It also would provide the opportunity to ask questions and exchange information.

In addition to having qualified officials from the government regulatory agencies to speak to us, we also are fortunate to have representatives from George Brown College of Applied Arts and Technology and Ryerson Polytechnical Institute to discuss what technical training can be offered to the food industry.

As you will note on the program, this conference is sponsored by the Ontario Ministry of the Environment - Pesticides Control Service in co-operation with the following organizations and associations:

American Association of Cereal Chemists
Bakery Council of Canada
Canadian Institute of Food Science and Technology - Toronto Section
Environmental Management Association
Grocery Products Manufacturers of Canada
Ontario Milk and Food Sanitarians Association

I would like to take this opportunity to thank the representatives from each of these organizations for the time and effort they spent in planning and preparing for this conference. Also I would like to express our special thanks and appreciation to the Ontario Ministry of the Environment and Mr. J. G. Kurys for the organizing work, providing the facilities and the many other things that must be done in arranging for a conference of this type.

In conclusion, I would like to thank all the speakers for being with us today. All are exceptionally well qualified and we are indeed fortunate to have people of this calibre to speak to us.

At this time I will turn the meeting over to Mr. Kurys from the Ontario Ministry of the Environment who is the Chairman for the morning session.

ONTARIO PESTICIDES LEGISLATION
PESTICIDES ACT AND EXISTING REGULATIONS
PERTAINING TO FOOD INDUSTRY

J. J. Onderdonk M.Sc.
Head Technical Support Unit
Pesticides Control Section
Ontario Ministry of the Environment

To-days meeting has been organized by George Kurys and several associations with particular reference to the food industry. While the Pesticides Control Section of the Ontario Ministry of the Environment has had previous contact with many individuals who are members of these associations, this is another, first - the gathering of all these groups here to-day for a conference on "Pest Control in the Food Industry." Groups whom we influence by our legislation and regulations are one of our most important measures of the practicality and success of our program. It is our goal to promote the "safe use and sound management" of pesticides in Ontario. No piece of legislation is "carved in granite;" it must by necessity be flexible. I can assure you of the continued interest and co-operation of each member of our staff.

Since this may be the first time many of you have been introduced to our pesticides legislation, I would like to outline briefly our history and the Ontario Pesticides Legislation.

Over twenty-five years ago, concerns of the Ontario Department of Health led to regulations under the "Public Health Act" to control space and stored product fumigations. Most of the administration of these regulations came from local medical officers of health and one man who worked part-time with pesticides, Mr. Bill Smith.

The programs and legislation were expanded over several years and resulted in the first Pesticides Act and Regulations

in 1967. The administration of this legislation rested with a small group in the Department of Health. These regulations by this time governed the use of pesticides in areas such as licencing of applicators in structural as well as land exterminations, general prohibition clauses (who, how, what, where and why pesticides could be used), and guidelines for cleaning up spills, accidents or contaminated goods or food. This was the first time land exterminators were licenced.

The next major development involving Pesticides Control was the birth of the Department of the Environment in 1971. The administration of Pesticides Control was moved from the Department of Health to the Department of the Environment which subsequently became the Ministry of the Environment.

In November, 1972, our control of pesticides became more encompassing. Under the Environmental Protection Act 1971, regulations were introduced to control the transportation, storage, sale and display of pesticides. These regulations control who can sell pesticides, what pesticides and to whom they may sell the pesticides.

The classification of pesticides is the basis of the vendor's licence program. Under this system there are five Schedules of pesticides:

Schedule 1 - Restricted Pesticides, such as the gases, methyl bromide and cyanogas.

Schedule 2 - Commercial and Agricultural Pesticides, such as most agricultural herbicides, chlordane 65% or baygon > 20%.

Schedule 3 - Home and Garden Pesticides, such as lower concentrations of insecticides of malathion or chlordane.

Schedule 4 - Unrestricted Pesticides, such as inocuous aerosols, solutions and pest strips, i.e., $\leq$ 0.2% lindane, $\leq$ 1% diazinon.

Schedule 5 - Agricultural exempt pesticides such as the highly toxic insecticides.

This classification was developed by the Ontario Pesticides Advisory Committee. This committee is composed of people from areas such as industry, clientel, provincial and federal government agencies, who considered such factors as toxicity, residual characteristics, use pattern, size and concentration of active ingredients in classifying pesticides.

In this manner we can channel pesticides into areas where they are vitally necessary and into the hands of people who can handle these pesticides wisely. Again, the major theme is the "safe use and sound management" of pesticides. This may be the first time in which some of you have heard of our Section. You may have tried to purchase 65% chlordone or Baygon over 20% and the pesticide vendor asked you for your exterminator's licence number and class. Without this licence you can not now buy these pesticides.

For several years confusion and duplication of requirements existed for the application of pesticides to water between the Water Resources Commission and our Section. Finally, last year the jurisdiction of this legislation was placed under our Section.

This is the present situation with the Pesticides Control Section administering all three pieces of legislation - Pesticides Act, 1967, The Environmental Protection Act, 1971, Regulations 552/72, and sections of the Ontario Water Resources Act pertaining to aquatic application of pesticides.

Currently, we are amalgamating these three pieces of legislation into one - The Pesticides Act and Regulations 1973. In March 1973, Bill 91 was passed in the legislature. This will be the Pesticides Act, 1973. It is passed; but it will not be law until the regulations are drafted to fit its framework. Hopefully, the Act and Regulations will be ready shortly.

These regulations have undergone many changes with consideration to comments, flaws, duplications, loop-holes and simplifications assembled by our staff, clients, pesticides industry, lawyers and other involved persons.

One of the major considerations in the new Act and Regulations has been the classification of pesticides developed by the Ontario Pesticides Advisory Committee for our vending program. This classification system is being used to develop our regulations. The class of exterminators licence you will hold will be based on the framework of this system. This should lead to the amalgamation of some licences held under the present Pesticides Act and Regulations 1967. This system will be more realistic and workable expecially in areas utilizing one pesticide or specialized equipment to apply a particular pesticide.

Do not worry, we will be using the rest of this year to introduce our new Act and Regulations as soon as it is passed.

Our legislation is not carved in granite! We want a viable system, as much as you do. If you have problems let us know so we can take care of them.

The Ontario Ministry of the Environment has recently been dramatically re-organized. The Pesticides Control Section has also been re-organized to improve the delivery of our programs. Our field staff now report to 6 Regional Directors located in Thunder Bay, Sudbury, Kingston, Toronto, Hamilton and London. This staff is responsible for all of the Ministries programs, and more Ministry personnel will be located in the field. The direction of the Pesticides Program and its assessment rests with a reinforced head office staff. The head office has added three new key members to the Technical Support Unit. They are:

1. A structural pest control specialist, Mr. Murray Wood.
2. a biology and aquatic nuisance specialist, Miss Donna MacKenzie.

and 3. a publications officer.

This additional expertise will allow the development and improvement of our programs. As I just mentioned, our new Act and Regulations will be introduced to you this year - an <u>educational year</u>. Presently, three pieces of legislation are in affect. Now, I will outline some of these regulations affecting you.

Since 1967, the food industry has required licencing to apply fumigants, persistent organo-chlorine or organ-phosphorous insecticides. Since March 6, 1973, a new regulation was added in which anyone applying any pesticide except those listed in Schedule 4 (Fact sheet entitled, Pesticides Available For Use By Restaurants Etc. For Structural Pest Control," was handed out) to their own property or the property of their employer would requre a Class 6 structural exterminator's licence. If methyl bromide or cyanide were used on your own premises or the premises of your employer, you would require a Class 5 structural exterminators licence. A Class 7 licence covers the pesticides used under Class 5 and 6 licence.

If an individual performs an extermination on his own premises or the premises of his employer, an operators or business licence is not required. However, the pest control firm which you may hire to do your pest control will require an operator's licence.

There are several important requirements for each of these structural exterminators licences:

1) An application for the appropriate class of licence;
2) two letters of character reference;
3) the applicant must pass an oral examination on pests, pesticides, safety, application and legislation;
4) the prescribed fee for the examination and licence.

Examinations are conducted by examiners appointed from government Ministries and from the structural pest control

industry. The examiners are selected for their knowledge in the appropriate area of the examination. Education and training programs are carried out to provide written and/or tutorially the basic information.

Practical experience is almost essential to ensure a satisfactory grade.

When you are considering your pest control program, you will have to consider some of the following:

1) Do you perform the extermination yourself or do you hire a structural pest control firm to perform the work;

2) What is your problem - extent of pest invasion,
   - what is the pest,
   - what pesticide will control the pest,
   - what sanitation or working processes need to be changed in your operation;

3) Do you meet the requirements of the pesticides legislation
   - is a licenced exterminator required,
   - can you buy the pesticide needed to control the pest;

4) Future control measures,
   - control of the present pest(s),
   - maintenance program for the future;

5) Remember the wealth of information and assistance you can obtain from - the structural pest control industry,
   - the pesticide manufactures,
   - OME, Pesticides Control Section,

   and - other government agencies.

Conference

on

Pest Control in Food Industry

May 15th 1974

Federal Regulations Pertaining to Food Industry

Speaker: P. W. Glass
District Supervisor
Food Inspection
Ontario Region
Health & Welfare Canada
Health Protection Branch

F E D E R A L R E G U L A T I O N S Pertaining to Food Industry

After being given my topic "Federal Regulations: Pertaining to Food Inudstry", I thought it might be more appropriate to title my talk "How to rid your Food Plant of Two Types of Pests". The latter one being your local Food and Drug Officer. I believe it is possible to rid your plant of the two-legged pest by eliminating all the other crawly creatures, insects, rodents, birds, etc.

Now, I'm going to bug you a little bit by throwing a few rocks at you by repeating what our Chief of Food Inspection, Mr. Elliot, said at a recent talk a few weeks ago. Mr. Elliot illustrated seven points in his talk and I would like to expound on two of these subjects today.

Having a written Sanitation Program posted in your plant is not enough! How often do you check that it is being carried out? Have you determined that the program would be effective if it were followed or is it an idealistic outline of what you think should do the job?

Having a contract with a pest control company is not enough if you don't ensure that the contract is fulfilled. You should know what the operator is using and the hazards, if any, it could cause to your product. You can defeat the contract by inviting every rodent and insect in town into your plant through poor construction. You can defeat the contract by leaving enough spilled product around thus allowing mice to grow fat without ever touching a bait station.

I believe the statements I have just made to be wise words and you should take heed of them.

The Food and Drugs Act is criminal law and is quite broad. The use of hazardous chemicals (pesticides) or unsanitary conditions can be in violation of one of the following section of the Food and Drugs Act.

4. "No person shall sell an article of food that;
   (a) has in or upon it any harmful or poisonous substance
   (b) is unfit for human comsuption
   (c) consist in whole or part of any filth, putrid, discussing, rotten, decomposed or diseased animal or vegetable substance
   (d) is adulterated or
   (e) was manufactured, prepared, perserved, packaged or stored under unsanitary conditions."

7. "No person shall manufacture, prepare, perserve, package or sell any food under unsanitary conditions."

   "Unsanitary Conditions" means such conditions as might contaminate a food, drug or cosmetic with dirt or filth or render the same injurious to health.

Now let us look at some basic principles of Pest Control:

(a) Pest Control using good sanitary practices and

(b) Chemical Pest Control

A Pest Control Using Good Sanitary Practices

1. Know the Pests you are Controlling

You may walk through your plant day after day and never see a rodent, cockroach, silverfish, flour moth, granary weevil or mouse. You should know what type of environment a particular insect or rodent requires. What is the life cycle of the insect, e.g. complete or incomplete metamorphosis. Does the larvae or the adult insect do the damage to the food in question? How many days are required to complete the life cycle? What is the best temperature and humidity for reproduction? What food is required by the pest? Know what insect or rodent damage looks like. Be able to identify insect tracks, rodent tracts or excrement. You should have a basic knowledge of entomology (identification of insects). There are a number of excellent texts and publications available at moderate cost for this purpose.

2. Have a Scheduled Plant Clean Up

All cleaning procedures should be in writing, including the frequency of clean up. Detailed explanations of how equipment comes apart including difficult areas to clean. What are the best chemical cleaners and how do they work? What equipment is necessary for cleaning? If chemicals are used on equipment, instructions should be supplied regarding rinsing. How long should it normally take to clean equipment or an area?

3. Have a Sanitation Inspection Program

Appoint a responsible employee who will report to top management. This employee will need technical training in all aspects of plant sanitation. Good communication is needed between this employee and all plant personnel. Written sanitation reports should be on a weekly or monthly basis depending on the size and complexity of the plant.

4. Have a System of Stock Coding

Code date all incoming ingredients and rotate stock on first in - first out basis. Code all manufactured items and rotate stock in a similar manner. The latter may be law in the future, but in the meanwhile it is necessary to carry out effective product control. If your firm has ever been involved in a product recall, I am sure you can appreciate a good coding system.

5. Maintainance of Building

Keep building in good repair and do not invite rodents and insects in to your plant by having broken windows or screens, poor closures of doors, etc. Keep the area around your plant clean and free of weeds, junk or other litter. Maintainance should be completed in an orderly planned manner and production should be stopped if there is any danger of contamination. The building design should allow for easy cleaning and should not provide a good harbourage for insects and rodents.

6. Quality Control Program

A good Quality Control Program will enable you to examine all incoming ingredients and materials for signs of infestation. The Q.C. Dept. could also identify insects or rodent droppings if necessary. In many plants sanitation reports are the responsibility of the Quality Control Dept.

B Chemical Pest Control

Chemical Pest Control cannot work by itself and should only be used where no other reasonable and economic method is available. Most chemicals are highly toxic to both man and animals. These chemicals can also be hazardous to our environment if they are not used properly.

Pesticides should be used by an experienced licenced operator. The operator can be an employee of your company or he can be contracted from an outside firm.

The Pest Control Operator should be: Knowledgeable regarding the pests that he hopes to control and should be familiar with the problems of the plant, as well as with the pesticides that he will be using. The pesticides should be safe to use in a food plant. The Pest Control Operator should be aware of the best method of controlling any health hazard to himself and other employees and health hazards to the environment that may be created. He should communicate to management or other responsible employees what follow-up is required e.g. clean up or wash up after chemicals are used.

What Importance does the Health Protection Branch Put On Abuse of Chemical Pesticides and How Do We Control the Residues?

First I believe the importance can be described by on Ontario Deouty Minister, Mr. E. Biggs', recent statement. "Pesticides are equal to the Car in importance to Society." I also believe there is some truth to this statement especially if either the car or pesticides are abused. It would be most difficult to abandon the car and go back to horse and buggy and equally difficult for agriculture to eliminate certain chemical herbicides and revert back to the hand hoe.

How does the Health Protection Branch control chemical residues? We provide meaningful data, which will reflect the incidence of pesticide residue in the Canadian food supply. To provide this data, regional and national surveys of many food commodities are necessary.

Our surveys are broken down into five main catagories, which are as follows:

#1 Regional Monitoring Survey

The purpose of this monitoring survey is to obtain information which will serve to indicate whether a pesticide residue problem does or does not exist within the region. The program for this monitory survey is developed at the regional level on an annual and quarterly basis. Some broad guidelines for this program are given by our Field Operations in Ottawa. When choosing the samples to be analyzed the region should take into consideration such factors as: Past history; area where pesticides are used most;

related information concerning abuse of chemicals by all handlers (including professional applicators); classes of food associated with already known problems e.g. imports from a problem country; use of new chemicals; information of available local infestation problems or any pertinent information available. Each of our twelve district offices across Ontario bargain for a portion of the samples schedule depending on the particular crop ~~our~~ commodity produced or is grown in his geographical location. The inspector during sampling will supply the analyst with as much detailed information as possible.

#2 Regional Inspection Survey

From the information gathered in the Regional Monitoring Survey the inspector will home in on the problem area. When a residue in excess of the legal tolerance or when a residue where no tolerance is established is found, an investigation will ensue. As our inspectors are not experts in all fields, the investigation will be a co-operative effort. The inspector is a trained investigator and he most likely will work with a team of experts. If the investigation reveals a residue on the crop or food commodity the food may be seized, destroyed or if necessary the firm may be prosecuted

#3 Monitoring on a National Basis

This survey is designed to acquire meaningful data that will serve to reflect the incidence of pesticide residue present in our Nation's food supply. Samples of food being offered for sale are collected across the

country on a statistical random basis. Analytical results will provide information upon which trend analysis may be made concerning changes in levels of pesticides residues which may occur over time. Many of the sample foods are composited at our five regional offices and all analytical analysis are carried out at our Vancouver Laboratory.

#4 Market Basket Survey

To obtain a better evaluation of the total amount of pesticides likely to be consumed by the average Canadian consumer, the Health Protection Branch is conducting a total diet study. In this study foods are purchased in grocery stores at designated cities across the country and are sent to our Ottawa Laboratory for analysis. The analyst prepares the samples for eating just as you would at home by washing, triming and cooking. After this, the table ready foods are analysed for pesticide residue. The amount of foods consumed in Canada during a year is estimated from statistics showing disappearance of food in Canada. The average per capita consumption of each commodity (foods) is then calculated. It is the figure that forms the basis of the total diet. These estimated average diets have the same limitation as an average or normal value in that it disregards individuals likes or dislikes and changes in eating habits that occur due to age or other factors. The other factors could be climate, income, ethnic customs, geographical location, prices, etc. The total diet is purchased four times a year, once every three months at different locations across Canada. Food is purchased for a hypothetical family of three for one week. To determine the type of pesticide found in a specific food, these foods are placed in twelve food groups When

a food is eaten raw or cooked for example: Onions, carrots, half of the quantity is cooked and the other half analyzed raw.

The purpose of the total diet survey is to determine intake of pesticides in foods consumed by Canadians. Acceptable daily intakes for specific pesticides has been established by the World Health Organization. The acceptable daily intake represents the amount of a particular pesticide which toxicologists consider to be safe for humans to consume each day for an entire lifetime. Our figures indicate that we are well below WHO recommendation, for example: we are only 5% of WHO, ADI for DDT and its metabolites.

During our survey for 1974-75 we will be using much of the data collected by Nutrition Canada Survey, which should give a better picture regarding the average Canadian diet.

#5 Human Fat and Human Milk Survey

In 1967, 132 samples of mother's milk were analyzed in Ottawa, which indicated an average content of 0.14 ppm of DDT and its metabolites.

In November 1969, restrictions governing the use of DDT were announced and this led to a significant reduction in the amount of DDT used in Canada. Since the restriction of use of DDT further surveys on mother's milk, and human fat tissue from accident victims have shown a significant reduction of DDT levels in the human body.

In conclusion I would like to say that chemical pest control will not work by itself, it can only supplement good sanitary practices. If pesticides are used according to direction ~~they~~ AND are not abused you should not have a residue problem.

THE ROLE OF PUBLIC HEALTH INSPECTORS IN FOOD INDUSTRY

BY

WILLIAM KEMPA
CHAIRMAN, PUBLIC HEALTH INSPECTION DEPARTMENT
COMMUNITY SERVICES DIVISION
RYERSON POLYTECHNICAL INSTITUTE

PRESENTED AT THE
CONFERENCE ON PEST CONTROL IN FOOD INDUSTRY
MACDONALD BLOCK, ONTARIO ROOM, QUEEN'S PARK

MAY 15, 1974

I want to express my appreciation and thanks to Mr. George Kurys for inviting me to participate in this important Conference.

In Last Monday's (May 13th) Toronto Star, page B 1 an article appeared with this title "50 Inspectors Police 5493 Food Outlets".

The term police projects the wrong impression of Public Health Inspector's role in food industry. A more appropriate word, in my estimation, is service - service to the entire community in which he works.

Inspection of food outlets is only one aspect of Public Health Inspector's activities, but it is an important one and usually occupies approx. 30% of his total time.

Under the Ontario Public Health Act, a Public Health Inspector is responsible for numerous other activities, such as:

- safety of private water supplies
- proper disposal of waste and sewage
- control of air, soil and water pollution
- certain aspects of Communicable Disease Control
- food and milk sanitation
- sanitation of swimming pools and recreational areas
- inspection of housing, beauty parlors, barber shops, etc.
- and rodent and insect control as specified in the Ontario Food Premises Regulations Sec. 4. (h).

"Every food premises shall be so constructed, located and maintained that, reasonable protection against the entrance of flies, insects, rodents, vermin, dust and fumes is provided".

R.R.O. 1970, Reg. 706.

A number of cities in Ontario - e.g. Toronto, Mississauga, Ottawa,have Public Health Inspectors who devote their entire time and effort to pest control.

May I divert at this point and briefly discribe the training that Public Health Inspectors must have before assuming such an array of responsibilities.

EDUCATIONAL QUALIFICATIONS

There are three Institutions in Canada that offer training programs for Public Health Inspectors.

1. British Columbia Institute of Technology, Burnaby, B.C.
2. Agricultural Institute of Technology,St. Hyacinthe, Quebec.
3. Ryerson Polytechnical Institute, Toronto, Ontario.

The minimum admission requirements are Grade 12 plus 60% or better average in math, physics and chemistry, (5 yr. level).

In reality we do much better. A survey of 150 out of 174 students enrolled in both years in 1973-74, revealed that 76% exceeded the minimum requirements. The results were as follows:

24%	-	Gr. 12
12.5%	-	partial Gr. 13
43%	-	complete Gr. 13
12.5%	-	partial University (1-3 yrs.)
4%	-	Diplomas - Ryerson and others
4%	-	University Degrees.

The program at Ryerson consists of four academic semesters (15 weeks each) or two years.

The program outline consists of 30 courses or subjects that must be completed. One of these courses - EHL 102 - General Sanitation is related to the theme of this conference and includes:

- housing
- nuissance complaint investigation
- recreational sanitation
- insect and rodent control which is the major component of the course.

Details of the latter include:

1. relationship of arthropods and rodents to human health
2. recognition of infestation
3. identification of major arthropods and rodent pests, their habits, life cycles and control procedures.

This course does not qualify Public Health Inspector as a pest control operator, but on completion he is capable of recognizing the existance of pest control problems and will then recommend referral to the experts in the field.

Other courses equip him to deal with the various facets of environmental health already mentioned.

Electives round out his education so he can work with people reasonably well.

On graduation from Ryerson or from any one of the other two training institutes, each graduate must meet two more requirements set out by the

Board of Certification of Public Health Inspectors, Canadian Public Health Association.

1. Minimum 12 week field training in an official health unit.
2. Oral Examination.

When all three requirements are completed, the Canadian Public Health Association issues a national certificate - C.P.H.I.(C) which is recognized across Canada.

At Ryerson since 1969, we offer a two semester post certificate program in Environmental Health Administration for those wishing to prepare themselves for supervisory positions. Many inspectors have taken advantage of this opportunity to **extend** their education.

A Degree Program is also on the "drawing board".

ROLE IN FOODSERVICE INDUSTRY

Because the food industry is so extensive in scope I will limit my remarks to the foodservice segment of the industry.

One major problem faced by the industry and governmental agencies at local, provincial and federal levels is the control of foodborne diseases. Most people including those present here today have experienced one or more of the typical symptoms after eating contaminated food:

- abdominal pain
- diarrhea or constipation (never both at the same time)
- chills, fever
- vomiting
- headache.

Some illnesses may be fatal e.g. Botulism has 50-65% fatality rate.

It is estimated that approximately 300,000 cases of foodborne illnesses due to microbial agents alone occur each year in Canada.

The primary and common goal of the foodservice industry and of the Public Health Inspector as well as of the food control specialist in the Health Protection Branch, Health and Welfare Canada is to reduce such occurrences.

The chief role of Public Health Inspectors therefore is to promote, through inspection, sampling and education preventive measures which will reduce the number of such illnesses. In public health programs, an "ounce of prevention still is and will continue to be worth a pound of cure".

The most productive safety assurance program is one which places emphasis on the human factor.

It is the foodservice personnel that can best prevent infective agents or poisonous substances from gaining entrance into food.

It is the same personnel that can effectively keep insects and rodents out of food premises and thereby eliminate opportunity for pests to come in contact with ingredients, and with food contact surfaces of equipment and utensils.

Humans, animals, and arthropods are reservoirs of microbiological agents which may be responsible for such serious outbreaks as typhoid and paratyphoid fever, diarrhea, dysentery, salmonellosis, staphylococcal intoxication, etc. Unfortunately the Toronto Star in its article, previously mentioned, did

not explain why food should be covered, why foodhandler's hands should be washed frequently, and why a bandaged finger may be a health hazard.

Effective control of foodborne illnesses can only be expected when every person connected with the food industry is aware of potential health hazards and is willing to excercise proper precautions that will reduce or eliminate opportunities for such illnesses to occur.

The educational approach and industry self-inspection are the methods of choice in dealing with the problem of food poisoning. In fact, adequately trained personnel in the foodservice industry is the only solution because they are the ones and not the Public Health Inspectors or federal food control officers who handle and prepare food day in and day out.

Regulatory officials who obtain the cooperation of food industry management and personnel are more likely to achieve the common objective of food safety than those who fail to gain mutual understanding of the problem.

It is suggested that the efforts of the Canadian Restaurant Association who developed, prepared and published the Sanitation Code in 1973 should be extended to all areas of the food industry.

The Public Health Inspector would be only too happy to lend assistance to this kind of promotional development.

Education instead of enforcement is much more palatable not only to the industry but to the enforcement agencies as well. Education may be a

a slower process but it has the decided advantage of being more lasting.

A Public Health Inspector is aware that an effective pest control program is essential to:

1. reduction of health hazards in food
2. reduction in economic losses through wastage of food supplies.

Close cooperation among all segments of the food and pest control industries and all regulatory agencies, namely;

- Agriculture - provincial and federal
- Environment - provincial and federal
- Health - local, provincial and federal
- Consumer and Corporate Affairs

is a must from here on.

The fact that we have such a splendid representation today from numerous sectors of the food and pest control industries and governmental bodies augurs well for the future. Congratulations are extended to those responsible for organizing this conference and to the sponsors for their interest and support.

SUGGESTED REFERENCES

1. Estrin & Swaigen, 1974. Environment on Trial - A Citizen's Guide to Ontario Environmental Law. Canadian Environmental Law Association and the Canadian Environmental Law Research Foundation. Toronto.

2. Landau and Rheingold, 1971. The Environmental Law Handbook. A Friends of the Earth/Ballantine Book, New York.

3. Ontario Food Premises Regulation 706, September 1973, Queen's Printer for Ontario Toronto.

4. Ontario Public Health Act. February 1972. Queen's Printer for Ontario, Toronto.

5. The Sanitation Code for Canada's Food Service Industry, 1973 - Canadian Restaurant Association, Toronto.

WHAT POST-SECONDARY INSTITUTIONS CAN OFFER IN TRAINING FOR THE FOOD INDUSTRY

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What Post-Secondary Institutions Can Offer in Training for the Food Industry

(To be delivered at "Conference on Pest Control in Food Industry" May 15th, 1974, MacDonald's Block, Queen's Park)

1. Introduction

Time does not permit a complete dissertation of such a broad topic. Therefore, I will restrict my comments to those publicly supported institutions, the Universities and Colleges with particular emphasis on the Colleges. Why the colleges? Simply because I am most familiar with their role and I believe that they are the least known or recognized by the food industry. The final restriction will be to direct my comments to the subject at hand, "Pest Control in the Food Industry". Even this limitation gives considerable latitude as we all know that there are a considerable number of pests inherent to the industry other than those we have been discussing to-day. In fact, these other pests may well be a subject for some future conference.

2. What are the Colleges?

The colleges are more correctly called Colleges of Applied Arts and Technology, CAAT for short, and more popularly called Community Colleges. I believe this latter term to be most appropriate, certainly in view to their distribution across the province and the manner in which they serve.

There are 22 such colleges located in 20 regions in the province. In addition, there are three agricultural colleges and Ryerson. The regional boundaries were chosen in accordance with population and common needs.

Figure 1 shows the location of each region and the community college serving that region.

3. Structure and General Role of the Colleges

The colleges are NOT junior Universities nor are they simple extensions to the secondary schools. They do respond to and effectively carry out post-secondary school education and training needs of the community not specifically covered by the other institutions. They are in effect a resource to be used by the community in a manner unsuitable for Universities and like institutions. This requires a

direct and mandatory link with the community making the college unique and versatile, being capable to respond quickly to changing community needs.

In the main the college physical and human resources are structured around specific full-time programs resulting from known traditional or unique community needs. Thus, the physical resources, the buildings and associated equipment as well as the human resources, skilled and knowledgeable instructors and administrators are maintained. The colleges are charged with the responsibility of ensuring maximum and efficient use of these resources as well as expanding their function by responding to community needs in education and training.

Although there is considerable variation in both the composition and size of the various divisions and departments within an individual college, all programs and courses fall into three broad categories; Technology, Business and Applied Arts, to which can be added extension, re-training and training in business and industry. Each college is headed up by a president who is responsible to a board of governors chosen or nominated from the community. The activities of all colleges are governed by a provincial Council of Regents who in turn are responsible to the Ministry of Colleges and Universities.

The Technology division presents a wide range of courses and programs which are, for the most part, engineering orientated. The programs are of 1 to 3 years duration (2 to 6 semesters). Included in this division are the related apprentice trade programs as well as a variety of short and re-training programs. A quick count of the programs and courses listed under this category as published in the Programs 1973/74 of the Colleges of Applied Arts and Technology brochure by the Applied Arts and Technology Branch of the Ministry of Colleges and Universities shows 32 engineering technology programs, 49 general technology programs for a total of 81 plus 42 apprentice and pre-employment programs.

As for the technology, the business division presents a wide variety of courses and programs, however, to date no apprenticeship programs. A quick count of the diploma programs in this area is 41 with the sub-divisions being: Accounting, Administration and Management, Data Processing, Marketing and Secretarial Science.

The Applied Arts division frequently serves a dual function in that it offers programs in the communication arts, human development, humanities, social services, etc. as well as functions as the academic arm of the college in offering courses to the other divisions. A quick count shows 53 programs in this division.

To this total of almost 200 programs being offered by the colleges, another 96 programs of less than 1 year duration must be added, and the list is not complete. Therefore there are at least 300 programs of various types being offered by the Colleges although not by each college. For those wishing further details please consult the brochure referred to earlier.

This proliferation of programs and courses did not result from a desire of the educators to build another empire but from direct requests from the community. All programs originate from recommendations of an advisory committee formed of knowledgeable persons in the community of which I will have more to say later.

In general, the Colleges endeavour to meet the immediate and forecasted future needs of the community as reflected by its representatives by means of flexible scheduling to permit full or part-time study, day, night or even on the week-ends. Greater and greater emphasis is being placed on the academic up-grading and re-training of adults as well as the need for more cultural and recreational courses as the result of increased leisure time.

4. Admission Requirements

Figure 2 is an Educational Flow Chart reproduced from page 10 of the brochure on the 1973/74 programs of the Colleges of Applied Arts and Technology. Applicants for diploma programs in Applied Arts, Business or Technology should have a minimum of 27 Ontario Secondary School credits, grade XII or its equivalent and for many programs, credits in specific courses are required.

Apprenticeship and re-training programs have varying prerequisites from Grade XII to Grade X depending upon the program type.

Equivalent credits can be obtained via college courses in the academic up-grading division although these are generally directed to specific college programs and not in the area of general education.

5. What Role Can the Colleges Play in Pest Control for the Food Industry

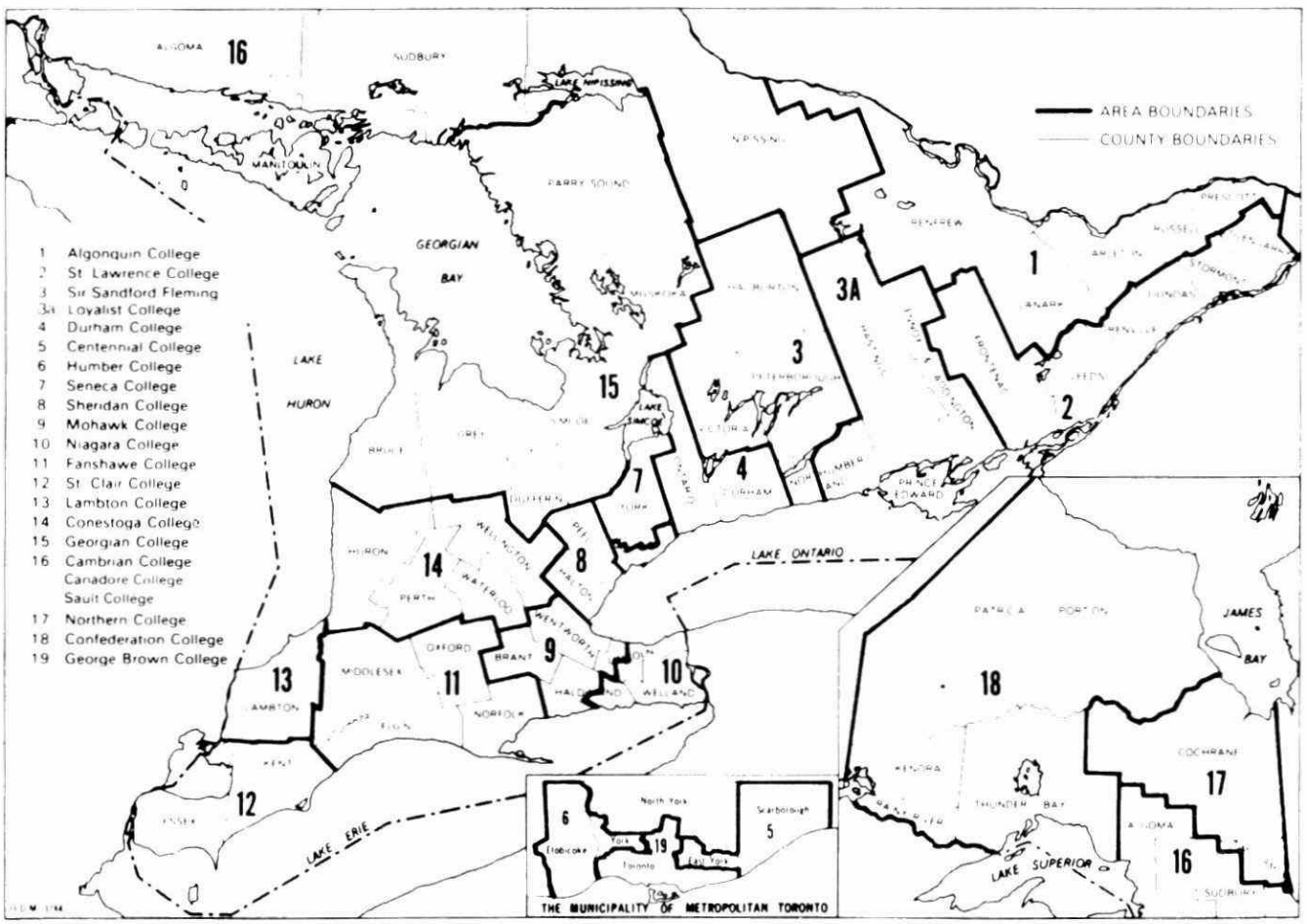
At this time I would like to discuss some suggested types of programs for the training of persons to be knowledgeable and skilled in pest control.

C.A.A.T. Chart number 7
Programs 1973-74

CCDO No	Name of Program	Name of College	ALGONQUIN (Ottawa)	ALGONQUIN (Pembroke)	CAMBRIAN (Sudbury)	CANADORE (North Bay)	SAULT (Sault Ste. Marie)	CENTENNIAL (Scarborough)	CONESTOGA (Kitchener)	CONFEDERATION (Thunder Bay)	DURHAM (Oshawa)	FANSHAWE (London)	GEORGE BROWN (Toronto)	GEORGIAN (Barrie)	HUMBER (Etobicoke)	LAMBTON (Sarnia)	LOYALIST (Belleville)	MOHAWK (Hamilton)	NIAGARA (Welland/St. Catharines)	NORTHERN (S. Porcupine)	NORTHERN (Kirkland Lake)	NORTHERN (Haileybury)	ST. CLAIR (Windsor)	ST. LAWRENCE (Kingston)	ST. LAWRENCE (Brockville)	ST. LAWRENCE (Cornwall)	SENECA (North York)	SHERIDAN (Oakville)	SIR S. FLEMING (Peterboro/Cobourg)	SIR S. FLEMING (Lindsay)
	SHORT PROGRAMS (UP TO 1 YR.) (cont'd.)																													
8215114	Meat Cutting								S				S																	
8333118	Metal Fabrication		S		2																						S	S		
8529222	Metal Products Assembler																											Ⓢ		
	Offset Printing								S				S																	
	Oil Burner Service		2										2																	
8373218	Optical Lens Making													S																
8563114	Power Sewing										S		S													S				
6115138	Protection and Security Services												S																	
8533118	Refrigeration		2										2																2	
5135199	Retail Sales		2						Ⓢ	2						Ⓢ								Ⓢ		2	2	2		
5130118	Service Technician		Ⓓ																									2		
8589299	Small Engine Service Marine Mechanics				S			S			S					2		S						S		S			S	
4133118	Supermarket Checker														S														Ⓢ	
2799	Teaching Techniques												S																	
	Technical Assistant																												2	
	Technical Up-grading		S										S																	
4133110	Teller Cashier				S				Ⓢ							Ⓢ								S						
9175122	Tractor-Trailer Driver *												S																	
8599999	Upholstery and Repair								S				S																	
4113122	Varitype Operator												S																	
3139142	Visiting Homemaker		S										S			S													S	
8784130	Wall Taper																												S	
8335166	Welding				2				2	S	S		S	S		2	2		S				S			S				
	Woodsworker		2																											
	VISUAL & CREATIVE ARTS																													
3135110	Apparel Technology												Ⓢ																	
3314114	Animation																											6		
9599114	Architectural Arts (Environmental)											6																		
3314118	Commercial Art and Design		2																									6		
	Communications (Studio Techniques)																6													
3313199	Crafts and Design				6									6														6		
3311110	Creative Arts		4				4								6										6	6	6	6		
3313150	Design Arts Basic Design								6		6	6		6													6			
3313162	Fashion Arts Modelling							6				4	Ⓓ	6					4					6			6	6		
3311118	Fine Arts		4		6						6			6										6	6	6			4	
3311118	Graphic Design								6		6	6			4									6		6		6		
3313138	Industrial Design								6		6		Ⓑ																	
3313114	Interior Design Decorating										6			6	4				4				4				4			
3313199	Jewelry Arts												6																	
3315110	Photographic/Cine Arts		6						6	4	6				4													6		
	Music				6										Ⓒ															
3319114	Signwriting (Comm. Art) Screen Printing												2																	
3335110	Theatre Arts Performing Arts				6	Ⓐ				4									6				4	4						
	General Arts and Science		4		4	4	4	6	4	4		4		6	6	6	4		4	Ⓐ								6	4	4	4
2399	Community Studies								4						6															
3330122	Film Production		Ⓔ						4	4																				
9919199	Horsemanship														4															
5190199	Marina Operations																											2		
5135126	Electrical Sales (Counterman)																											Ⓑ		

Ontario Colleges of Applied Arts and Technology • Areas

Figure 1



Educational Flow-chart

Figure 2.

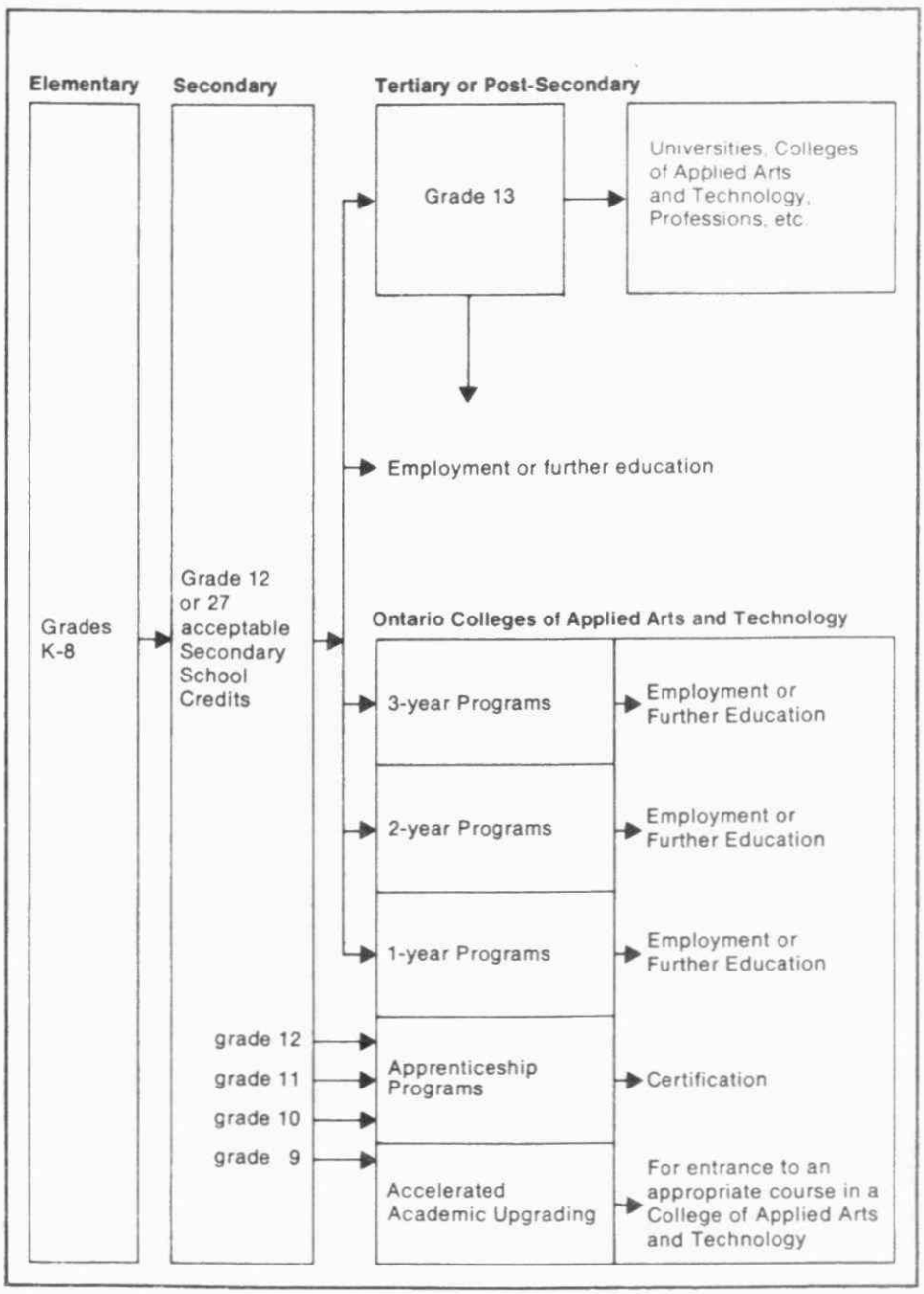
1
Honour graduates of the Four-Year Programs may be accepted for enrolment in a 3-year college program.

2
Grade 13 graduates may be accepted with advanced credits to certain programs.

3
An applicant who does not have a clear admission may be given the opportunity of writing qualifying examinations.

4
After assessment, deserving applicants may be eligible for advanced standings and/or for accelerated programs.

5
REFER TO THE OFFICIAL COLLEGE PUBLICATIONS FOR SPECIFIC ADMISSION REQUIREMENTS, AND DETAILED INFORMATION ON PROGRAMS.



List of Ontario Colleges of Applied Arts and Technology

AREA 1

Algonquin College
President: Dr. G. Maher
1385 Woodroffe Avenue
Ottawa 5, Ontario (613) 725-7010

Upper Ottawa Valley Campus
Principal Mr. A. F. Tiesdell
315 Pembroke Street East
Pembroke, Ontario (613) 735-0105
K8A 3K2

AREA 2

St. Lawrence College
President: Mr. W. W. Cruden

Kingston Campus
Principal: Mr. D. W. Anderson
Portsmouth Ave.
Kingston, Ontario (613) 544-5400

Brockville Campus
Principal: Mr. P. R. Doyle
Parkdale Ave.
Brockville, Ontario (613) 345-0660

Cornwall Campus
Principal: Mr. L. J. Tremblay
Windmill Pt.
Cornwall, Ontario (613) 933-6080

AREA 3

Sir Sandford Fleming College
President: Mr. D. B. Sutherland
P.O. Box 653
Peterborough, Ontario
(705) 743-5610

AREA 3A

Loyalist College
President: Mr. H. Young
P.O. Box 4200
Belleville, Ontario (613) 962-9501

AREA 4

Durham College
President: Dr. G. E. Willey
Simcoe Street North
Oshawa, Ontario (416) 576-0210

AREA 5

Centennial College
President: Mr. D. E. Light
651 Warden Avenue
Scarborough, Ontario (416) 694-3241

T.I.P.T. Campus
Dean H. W. Thompson
930-936 Warden Avenue
Scarborough, Ontario (416) 694-3241

AREA 6

Humber College
President: Mr. Gordon Wragg
P.O. Box 1900
Rexdale, Ontario (416) 677-6810

AREA 7

Seneca College
President: Mr. W. T. Newnham
1750 Finch Ave., at Woodbine
Willowdale, Ontario (416) 491-5050

AREA 8

Sheridan College
President: Mr. J. M. Porter
1430 Trafalgar Road
Oakville, Ontario (416) 845-9431
Toronto Line (416) 362-5861

School of Design
1460 South Sheridan Way
Port Credit, Ontario (416) 274-3685

AREA 9

Mohawk College
President: Mr. S. Mitminger
135 Fennell Ave. West
Hamilton, Ontario (416) 389-4461

AREA 10

Niagara College
President: Mr. A. Manera
Woodlawn Road
Welland, Ontario (416) 735-2211

AREA 11

Fanshawe College
President: Dr. J. A. Colvin
P.O. Box 4005 Terminal 'C'
London, Ontario (519) 451-7270

AREA 12

St. Clair College
President: Dr. R. C. Quittenton
2000 Talbot Rd. W.
Windsor, Ontario (519) 966-1656

AREA 13

Lambton College
President: Mr. G. M. Delgrosso
P.O. Box 969
Sarnia, Ontario (519) 542-7751

AREA 14

Conestoga College
President: Mr. Jas. W. Church
299 Doon Valley Drive
Kitchener, Ontario (519) 653-2511

AREA 15

Georgian College
President: Mr. R. P. Crawford
401 Duckworth Street
Barrie, Ontario (705) 728-1951

AREA 16

Cambrian College
President: Mr. J. T. Koski
1400 Barrydowne Road
Station A
Sudbury, Ontario. P3A 3V8.
(705) 566-8101

Canadore College
President: Dr. M. A. Hewgill
P.O. Box 5001
North Bay, Ontario (705) 474-7600

Sault College
President: Mr. G. R. Lawson
P.O. Box 60
Sault Ste. Marie, Ontario
(705) 949-2050

AREA 17

Northern College
President: Mr. J. H. Drysdale
P.O. Box 1062
155 Pine St. South
Timmins, Ontario (705) 264-9413

Porcupine Campus
Dean: Mr. E. F. Baumert
P.O. Box 2002
South Porcupine, Ontario
(705) 235-3291

Kirkland Lake Campus
Dean: Mr. L. R. Jones
140 Government Road East
P.O. Box 970
Kirkland Lake, Ont. (705) 567-9291

Haileybury Campus
Dean: Mr. J. D. Frey
P.O. Box 849
Haileybury, Ontario (705) 672-3376

AREA 18

Confederation College
President:
A/V/M D. A. R. Bradshaw
P.O. Box 398
Thunder Bay, Ontario (807) 577-5751

AREA 19

George Brown College
President: Mr. C. C. Lloyd
P.O. Box 1015, Station B
Toronto, Ontario M5T 2T9
(416) 967-1212

Refer to the official college publications for specific admission requirements and detailed information on programs

A. Diploma Program, Technology

i) Two year Technician

ii) Three year Technologist

Terminal Objectives - qualify for complete licensing as

a) landscape

b) structural

c) both

Under present and proposed legislation, complete licensing in either or both categories requires extensive practical experience and skills. In order to accomplish this in a full-time program at the college it would have to be carried out in co-operation with the industry; in this case the industry would be firms specialized in this type of service.

A suggested format could be four semesters of 12 to 15 weeks each at a college plus two semesters of 20 weeks in practical work in the industry for a two year technician program or six, 12 to 15 week semesters plus three, 20 week semesters in industry for a technology program. Intermediate training objectives would have to be detailed for each semester of both the theoretical college phase and the practical phase in industry.

In addition to a detailed knowledge of the chemical, physical and toxicological properties of the various permitted pesticides; such a technician or technologist should be knowledgeable of agricultural science and engineering, ecology, biology, civil engineering with particular reference to the structural, electrical, mechanical etc. aspects of buildings, sanitation (environmental and food plant). I am sure many of you could add to this list.

The practical phase should ensure working involvement in all aspects of pesticide applications and pest control under as wide an area of circumstances as possible. This should not be left to either chance or solely at the discretion of an employer but should be detailed with respect to the minimum standards or criteria required. It is anticipated that the students would be paid by their employer during the practical phase.

How is a New Program Started

1. Advisory Committee. The first step is the formation of an Advisory Committee composed of persons knowledgeable of the technology and the industry in which graduates will be employed. They should be prepared to supply the following:

a) Immediate and future needs for graduates, i.e. employment opportunities.

b) Detailed description of the courses to be taken at the college and the practical experience required.

c) College facilities required to carry out program.

d) Arrangements for ensuring practical phase.

e) Estimate of capital and operating costs of the program.

In addition to the above the committee should carefully consider the college or colleges most suitable for such a program. Considerations for this should include availability of human and physical resources which could be directly applied or adapted to the program, proximity to the greatest number of potential students and practical applications.

The next step is taken in co-operation with the college in that a detailed request for such a program containing the above information. This is sent via the college president and its Board of Governors to the Coucil of Regents. They judge the submission as to suitability, verify the information supplied as well as ensure themselves that there are no programs which duplicate or closely approximate that proposed to avoid costly duplication. The Applied Arts and Technology Branch of the Ministry having detailed information on all college programs and facilities as well as experienced experts in the various program areas would be called upon to assist the Council in its review.

Drawbacks to Such a Program

Time is a prime factor. If the procedure was started to-day, the earliest the program could start would be September 1975. Add to this the required time to graduate, 2 years for technician level, 3 years for technologists, then graduates would not be available before 1977 or 1978. Therefore if the need for graduates is immediate an interim program of re-training and up-grading within the industry would have to be initiated.

The next, and most serious, is the availability of students, specially if we were to rely upon secondary school graduates. Not only is the number of such graduates starting to diminish but they are also faced with a mind-dazzling array of possible programs at the college and university level. Experience has shown that unless a new program is well advertised, certainly with respect to the challenging and rewarding aspects of a career possible upon graduation few if any applicants will be received. Since a college is dependant

upon student enrolement for its operating funds (90 to 95% from government grants based on student enrolement, 5 to 10% from student fees) a program cannot survive without sufficient student enrolement. Minimum enrolement in each and every year of such a program varies somewhat, depending upon the operational cost per student hour but is about 20.

As to the advertising to attract applicants to the program, I do not believe that a college should advertise any particular program to the exclusion of others. If the industry believes that graduates from such a program are vital to its interests then it is best suited to engage in such advertisement and promotion. A tried and proven method of recruiting students has been the offer of financial assistance via scholarships, bursaries or complete payment of fees, books and subsistance allowance either by the industry or in cases of universal community need by government. Assistance such as the latter is not unknown, having been applied, until recently, to nurses, and certain other allied medical and health programs.

Co-operative programs mean more than providing the student with a summer or part-time job by which he or she can make enough money to pay for in full or in part the costs of his education. It means a concerted effort on the part of the employer to ensure that the student obtains the requisite practical training and experience. The productivity of the student employee cannot be of prime consideration.

The company should realize that this will be its contribution to the education and preparation of graduates who will be employed in their industry and the more effectively this is carried out the higher will be the competence level of the graduates. This problem is a far greater obstacle than generally realized.

B. Apprenticeship Programs

Apprenticeship programs are conducted and administered by the Ministry of Labour. Such a program, if approved, would provide two essential components, financial support to students and guaranteed practical training and experience. Under such auspices, the college or theoretical phase would be reduced and the practical or in-plant training increased. The prime objective would still be licensing. Entrance requirements could remain the same, i.e. grade XII diploma or it could be reduced to any level consistent with those studies and training required.

To initiate such a program for the training of pesticide applicators a petition to the Ministry of Labour is required. If sufficient justification for the need for

this program is presented the Ministry would then embarque upon a more detailed study. One of the major steps in such a study would be the formation of a Provincial Advisory Committee, again formed of knowledgeable persons from across the province. Primarily the same questions would have to be answered as in the case of the technology program at a college.

Apprenticeship programs are co-operative with special requirements. First, the apprentice is indentured to either a qualified or licensed tradesman for that trade or a company employing such qualified tradesmen and are involved in the practice of that trade. The student receives practical instruction and training from the tradesman for which he receives a basic wage which is increased as he progresses from basic to advanced status. There is also a theoretical phase which is taken at a college. The theoretical phase can consist of 1 or more sessions during the apprentice term with each being as low as 7 weeks up to 20 weeks depending upon the trade requirements.

While attending the college the student has his fees, books and instruments paid for or supplied and receives a subsistance allowance from the Ministry of Labour. The allowances are as follows:

a) Single and living at home	$44.00/week
b) Single and not living at home	$55.00 "
c) 1 dependant	$68.00 "
d) 2 dependants	$79.00 "
e) 3 dependants	$88.00 "
f) 4 or more dependants	$95.00 "

g) Special Allowances - travel, if residence is more than 15 miles away from college, allowed 5¢/mile.
- separate residence, if attendance at college requires maintaining two residences, receives an additional subsistence allowance of $27.00/week.

The Advisory Committee will assist the Ministry to draw up a detailed description of the courses to be taken at the college, determine the number and duration of the sessions, as well as, detail the instruction, skills and practical experience required during the practical work phases. If licensing is required, then qualifying examinations are set independant from the college.

Once an apprenticeship program has been approved, a college or colleges having the human and physical resources most adaptable to the type of program will be asked to give

the theoretical phase. Should the program require special resources which cannot be shared with other programs a financial porblem arises. The college is reimbursed on a per diem basis for each apprentice in attendance. Thus if special facilities are required, particularly skilled teaching staff the funds received must be adequate. This can be reduced by the facilities being shared with other programs during the academic year, and employing part-time instructors. Of course, it is preferable to have sufficient students or intakes for the whole year. In the latter case, a program requiring two 10 week theoretical phases, (basic and advanced), at the college over a two year apprentice term, would, after the initial year, require a total of 20 instructional weeks per year. To effectively use the resources on a full time basis would require 2 basic and 2 advance groups each year for a total of 40 instructional weeks. The number of students in each group would have to be at the required minimum.

Disadvantages

Although this may well be an attractive avenue to train pesticide applicators (exterminators) it could prove difficult to establish the provincial need for graduates in sufficient numbers on a continuing basis to make such a program viable. Certainly, if additional public funds are going to be used in excess of those for normal educational streams the community need must be of a high order of priority.

As in the co-operative technology program, the practical phase can present problems. First, not all tradesmen are good instructors. Second, not all companies or licensed operators are engaged in the total area so that the apprentice could gain the required experience and skills. There is also the hazard that the apprentice becomes an integral part of the work force and is frozen into a particular activity in which he becomes proficient and contributes to the profit and must be replaced when he is released for the theoretical college phase. There is a cost factor to the company which must be considered.

Although somewhat alleviated by the financial support aspects, recruitment of apprentices can be a problem. As with the technology program, there would be a time lapse of 2 to 3 years before the first graduate would be available. Again, an interim program would have to be developed to provide trained and skilled operators during this period.

c) Programs Under 1 Year

Programs of this type could provide a basis for interim training to cover the gap created by the others discussed earlier or specific training for a limited

license. Analysis shows that such programs vary from 10 to 40 weeks duration with many of them being supported by Manpower for their re-training program.

In order to obtain the support of Manpower for a specific program, a significant number of immediate and continuing job opportunities must be proven. If adopted, Manpower will recruit students, pay their fees and provide a subsistance allowance at the same rates as for apprentices. Should an applicable program not be available at any of the colleges, Manpower will request that one be developed and usually at a college having the best facilities for the program desired. The college is paid a per diem allowance by Manpower for each student it sends.

As with other programs the college is limited by having to have a minimum number of students and on a continuing basis if special facilities are required which cannot be shared with or used by another program. Industry could also take advantage of this type of program, to re-train or up-grade its employees.

A wide variety of approaches are possible with short-term programs. Combinations of college and in-plant or field training, continuous intake, etc. are being employed. A combination of short term programs could well be applied to the progressive training of pesticide applicators.

Colleges offer a large number of extension courses covering a wide spectrum of subjects. In this connection George Brown College will be offering a 15 week, 3 hours/week course on the theoretical aspects of pesticide application and pest control. A minimum enrolement of 15 is required for an extension course. A minimal fee of between $20.00 to $40.00 per student is charged. Such courses receive financial support from the Ministry. Although these are generally offered at normal non-working hours, they can be offered at any time suitable to the students. One major draw-back to such courses is that little, if any, can be obtained in the way of capital expenditures to provide any special facilities.

An interesting variation is the "Day-Release" type of program. In this, a company releases, with pay, an employee for 1 whole day's training at a college. In this way, the theoretical and on-the-job training can be closely correlated. Theoretically what the student is taught one day he would apply during the next four. To be successful, this type of program requires a high population concentration to provide sufficient students within commuting distance from the college. Although the college training would be subsidized by government grants, the company would have to pay the employee's wages for the day as well as a small registration fee of about 50¢ to 75¢ per hour of instruction. The college still is restricted by minimum class enrolement. There is the possibility, if

sufficient students in the immediate vicinity were available that such a method could be applied to apprenticeship or Manpower re-training programs.

Training In Business and Industry, TIBI

Programs and courses in this category offer great opportunities for up-grading or re-training personnel already employed in the industry and are being used more and more. Such courses are administered by the college but are generally held off-campus. Thus, any company or recognized group or association can approach the college in their region and request a particular course of training under this plan.

Generally, about 15 students are required and at least 10 instructional hours is a minimum, with some courses having up to 100 hours. If the conditions are acceptable, 70% of the instructional costs, i.e. instructor, audio-visual aids, preparation, etc. are paid by the college and 30% by the firm, group or association. Each college has complete autonomy over such courses in its region, hence all requests must be made to the college in the region in which the course is to be given.

Generally, the food industry as a whole has been slow to use this most versatile training method. It has great value for training in specific areas or skills at all levels within a company. Under this method, groups or associations can offer courses answering common needs of the industry and at a low cost.

Conclusions and Summary

Traditionally, specialists in the Food Industry have been trained on-the-job. It recruits at all educational levels including specific trades, professions and disciplines. Only fairly recently has there been post-secondary programs specifically designed for the Food Porcessing Industry, for example, Food Science at the University and Food Technology at the College level. As for trades, bakers, cooks, chefs and meat cutters are recognized in the apprenticeship program. All other skilled persons are trained on-the-job by each company according to its needs. Such on-the-job training can be, and frequently is, a costly and inefficient training method.

The industry should collectively and individually appraise its needs for specifically trained and skilled employees. Next, in conjunction with trained and experienced educators it should detail what knowledge,

skills, and experience is required to equip a person to fulfill any specific need. With this information the post-secondary institutions can rapidly develop a variety of programs and courses to assist in obtaining your goals. With this in mind, George Brown College in co-operation with the Ontario Government are planning a questionnaire to be circulated throughout the Food Industry in Ontario. You will be asked to answer questions related to your needs for personnel having specific training and skills. The results of this survey will be made available to all post-secondary institutions so that they may construct and offer courses which will assist you in satisfying your needs. I hope you will co-operate by answering all questions as completely as possible and returning the questionnaire promptly.

A need for persons trained and skilled in pest control can serve as a good example. This is a problem common to all companies involved in the production, processing, manufacture, storage and shipping of foods. This morning you have listened to spokesmen from various government describe the intent not only to regulate what agents may be used but also how and by whom. This stems from a real concern about the toxic effect of these agents when carried through into foods as well as the effect on nature's delicate balance. Added to this is the continuing pressure to eliminate all contamination of foods by pests. As I see it, there is and will be a continued demand for personnel trained in this specialty, whether a company uses its own employees to carry out the proceedures or hires an outside agency to do the job. By acting in concert, any or all of the facilities I have discussed to-day can be made available to train personnel as well as develop expertise for continued improvement of methods and skills to meet specific applications.

Recruitment of suitable persons to undertake training for such employment will continue to be a problem. A post-secondary institution cannot continue to promote any one course or program over others. Therefore the responsibility lies with you, the industry, to encourage persons, specially secondary school graduates to pursue such careers. My contact with such students over the past five years has revealed that a career in the food industry is not rated very high. A concerted effort will be required to change this opinion, an opinion in my view is erroneous. Perhaps some version of the financially subsidized programs will be required to initiate a training program.

I leave it to you, the resources are available, get it together, identify your needs then a total and continuing program to ensure satisfaction is a very easy next step.

LIST OF PEOPLE WHO ATTENDED

CONFERENCE ON PEST CONTROL IN FOOD INDUSTRY

ON MAY 15TH, 1974

No.	Name of Company & Address	Employees Name & Address
1.	Adams Brands, Division of Wrner-Lambert Canada Ltd. 40 Bertrand Ave. Scarborough, Ontario.	Geo Pawson 22 Glenda Rd., Scarborough, Ont. Jim McCurley 1063 Don Mills Rd., Apt. 401, Don Mills, Ont.
2.	Abell Waco Ltd. 246 Attwell Dr. Rexdale 605, Ontario.	R. E. Abel
3.	Ministry of Agriculture & Food Milk Industry Branch	G. G. Ward
4.	Beatrice Foods P.O. Box 1236 Kitchener, Ontario.	Remi Brengman & Donald Snyder
5.	Department of Consumer Studies University of Guelph	Ms. Judy Whitwell
6.	Campbell Soup Company Ltd. 60 Birmingham Street Toronto, Ont. M8V 2B8	G. M. Shewman 30 Springhurst Ave. Apt. 906 Toronto.
7.	Canada Brad Company, Division of Corporate Foods 196 Bartley Drive, Toronto, Ont. M4A 1E5	Ray Cukjati 95 Roston Ave., Toronto, Ont. Mario Scarpelli 77 Picard Dr., Downsview, Toronto 4.
8.	Canada Malting Co. Ltd. 622 Fleet St. West Toronto, Ontario. M5V 1B1	D. J. Lubert
9.	Canada Packers, Chemical Division 521 Front St. E. Toronto, Ontario. M5T 1G7	Hans Breuer 2200 St. Clair Ave. W. Toronto, Ontario. M6N 1K4
10.	Canada Packers Limited 2200 St. Clair Ave. W. Toronto, Ont. M6N 1K4.	Grant Johnston R. S. Hledin W. O. Munns, Chief Chemist 2250 St. Clair Ave. Toronto.
11.	Canada Packers Ltd. 145 East Drive Bramalea, Ont.	Mr. D. E. Burrell
12.	Canadian Canners Limited Research Centre 1101 Walkers Line Burlington, Ontario. L7N 2G4	R. W. Patton

No.	Name of Company & Address	Employees Name & Address
13.	Canadian Sanitation Standards Association P.O. Box 54, Port Credit Mississauga, Ontario. L5G 4L5	Harold L. White Exec. Director
14.	Catelli Limited 6890 Notre-Dame St. East Montreal. H1N 2E5	G. S. Grant
15.	Cherry Taylor Flour Mills Ltd. P.O. Box 368 Preston, Cambridge, Ont.	G. Urwin Preston, Cambridge Ontario. V. Wood Box 33, Alton, Ont.
16.	Christie's Bread, Division of Nabisco Ltd. 2150 Lake Shore, Boulevard West Toronto, Ontario. M8V 1A3	Robert Saunders 36 Rowatson Road Scarborough, Ont. John Shadoff 64 Allview Crescent Willowdale, Ontario.
17.	Christie Brown & Company Ltd. 2150 Lake Shore, Blvd. West Toronto 14, Ont.	Vince Lucca R. R. 2 Road 147, Stroul
18.	City of Toronto Department of Public Health 2149 Gerrard St. E. Box 5 Toronto, Ontario.	L. E. King
19.	City of Toronto Department of Public Health New City Hall, 6th Floor East Tower, Toronto.	Sollock J. W. 3616 Anniversary Rd. Mississauga, Ontario. F. Ruf 3355 Carillion Ave. Mississauga, Ontario. A. Easterbrook 23 Claxton Blvd. Toronto, Ontario. M6C 1L7
20.	Club House Foods Ltd. 316 Rectory St. London, Ontario.	Tom Lubos # 8 - 30 McClary Ave. London, Ontario. N6C 1P7
21.	Quality Control Division Coca-Cola Ltd. 42 Overlea Blvd. Toronto, Ontario, M4H 1B8	H. E. Tobias
22.	Community Health Dept. Etobicoke Civil Centre Etobicoke	Eric Nesplick
23.	Crush Beverages Ltd. 1590 O'Connor Dr. Toronto, Ontario.	B. Nicholson
24.	Dads Cookie Co. Ltd. 370 Progress Ave., Scarboroug, Ont.	R. Klim

No.	Name of Company & Address	Employees Name & Address
25.	Dampster's Div. of Corporate Foods 2 Fraser Ave. Toronto, Ontario.	A. H. Telfer T. Kachmarchuk
26.	Diversey (Canada) Ltd. 2645 Royal Windsor Drive Mississauga, Ontario. L5V 1L1	John Sorensen R. R. #1, Puslinch, Ontario. NOB 2JO G. Hunter 10 Elizabeth St. South Port Credit
27.	Dominion Dairies Ltd. 254 Berkeley St. Toronto, Ontario.	Eric Boles Glenn Creamer
28.	Domtar Chemicals Limited Sifto Salt Division 245 Regent Street, P.O. Box 100 Goderich, Ontario. N7A 3Y5	Arnie Keskinen 55 Wendover Dr., Apt. 1006 Hamilton, Ontario. L9C 5V8
29.	Durham Region Health Unit 301 Golf St. Oshawa, Ontario.	H. Malcolm H. Robinson
30.	Elgin-St. Thomas Health Unit 2 Wood Street St. Thomas, Ontario.	John R. Elley 158 Caverly Road, Aylmer, Ont. John E. Taylor Box 103, Union, Ontario.
31.	Ministry of the Environment Pesticides Control Section Box 219, Cambridge, Ont.	Robert C. Milk
32.	- do - , Burlington	Geoff Carpenter
33.	- do - 1500 Fisher St. North Bay, Ontario. P1B 2H3	Douglas Mewett 1020 Copleland St. North Bay, Ont.
34.	Etobicoke Community Health Department Civil Centre, Etobicoke, Ont. M9C 2Y2	James K. Lee 425 Palmerston Blvd. Toronto, M6G 2N7
35.	Firmenich of Canada Limited 30 Finley Road Bramalea, Ontario.	Mr. T. Martin 35 Geneva Cresc. Bramalea, Ontario.
36.	The Fleischmann Company 1075 Ellesmere Road Scarborough, Ontario. M1P 2X2	W. R. Topham 30 Harringgay Cres. Agincourt, Ontario.
37.	General Foods 520 William St. Cobourg, Ontario.	John Hawryszko

No.	Name of Company & Address	Employees Name & Address
38.	General Bakeries 53 Seneysack R.N. Hamilton, Ontario.	B. Higgins
39.	General Bakeries 24 Sanford St. N. Hamilton, Ontario.	John Kolisnyk
40.	General Bakeries Limited 462 Eastern Ave. Toronto, Ontario.	V. Cowley 35 Thorncliffe Park Drive Apt. 408, East York, Toronto. C. Ellul 233 Woodfield, Toronto.
41.	General Foods Limited 520 Williams Street Cobourg, Ontario.	W. E. Zinkie 45 Hamilton Ave. Cobourg, Ontario.
42.	General Mills Canada Ltd. 1330 Martin Crovil Rd., Rexdale, Ont.	Charlie DeBono 1015 St. E., Mississauga, Ont.
43.	George Brown College P.O. Box 1015, Station "B" Toronto, M5T 2T9	SPEAKER Dr. Bertha J. Smith 340 St. Clements Ave. Tor. M5N 1M4
44.	George Brown College 21 Nassav St. Toronto, Ont.	M. Kerman 21 Nassav St., Tor., Ont.
45.	Gerber Products of Canada Ltd. 5515 Stanley Ave. Niagara Falls, Ont. L2E 6W6	James W. Bauley, Q.C. Mgr. 6960 Freeman St. Niagara Falls, Ont. L2E 5V2
46.	Gilbey Canada Ltd. 400 Kipling Ave. Toronto, Ont.	G. A. Menezes 44 Dorset Drive Bramalea, Ont.
47.	Green Giant of Canada 500 Ouellette Ave. Metro Trust Bldg., Windsor, Ont. N9A 1B6	Ed. Dydo
48.	Grey-Owen Sound Health Unit County Bldg., Owen Sound, Ont.	T. H. Waters R. R. #4 Owen Sound, Ontario. N4K 5N6
49.	The Griffith Laboratories 757 Pharmacy Ave. Scarborough, Ontario.	Geo A. Overzet 15 Tangreen Court Apt. 1802, Willowdale, Ont. M2M 3Z2
50.	Hardee Farms International Ltd. Toronto.	Bruce Major

No.	Name of Company & Address	Employees Name & Address
51.	Haliburton, Kawartha, Pine Ridge District Health Unit Box 337, Cobourg, Ontario.	Doug Shelton R. R. #4, Cobourg, Ontario.
52.	Haliburton, Kawartha, Pine Ridge District Health Unit 17 Wulliam St. Sq. Lindsay, Ontario.	Robert Nickol
53.	Hamilton General Hospital 237 Barton St. E. Hamilton, Ontario. L8L 2X2	Mrs. J. Bryce 831 Mohawk Rd. E., Hamilton, Ont. Mr. J. Solum 1136 King St. E., Hamilton, Ont.
54.	Hamilton-Wentworth Regional Health Unit 74 Hughson Street South Hamilton, Ontario. P.O. Box 897 Ontario.	Frank Shimoda
55.	Ontario Milk & Food Sanitarians R. R. #2, Harley, Ontario. NOE 1EO	W. A. Herley, President
56.	Health & Welfare Canada Health Protection Branch 2301 Midland Ave. Scarborough, Ontoario.	Ed. Salahub Henry Vriezwma Dave Ridgway Olara Williams
51.	H. J. Heinz Leamington, Ontario.	John Ingratta
52.	Home Juice Co. Ltd. 175 Fenmar Dr. Weston, Ontario.	Anne Sonley R. R. #2, Whitby, Ontario.
53.	Huron County Health Unit Court House Goderich, Ontario. N7A 1M2	Jack A. MacKinnon, C.P.H.I. 203 Quebec St. Goderich, Ontario.
54.	InterBake Foods Limited 33 - Connell Court Toronto, Ont.	A. Webster
55.	J. B. Jackson Ltd. 175 Union Street Simcoe, Ontario. M3Y 4L5	Bill Thompson Isabella Lam
56.	Japan Trade Centre 151 Bloor Street West Suite 700, Toronto, Ont. M5S 1S8	Y. Yamaura, Agriculture & Fishery Sect.
57.	John Labatt Limited 150 Simcoe St., P.O. Box 5050 London, Ontario.	Dr. T. C. Loughheed
58.	T. J. Lipton 306 Orenda Road Bramalea, Ontario.	Brian Milovich S. E. Holmes

No.	Name of Company & Address	Employees Bane & Address
59.	Kambly (of Switz) Canada Limited 134 Peter St. Toronto, Ontario.	R. Thomson
60.	Kellobb/Salada 325 Humber College Blvd. Rexdale, Ontario.	M. Palmor
61.	Kellogs of Canada Co. Limited 1097 Dundas Street London, Ontario.	S. Elliott P. Rowan
62.	Kemptville College - Agr. Tech. Kemptville, Ontario. KOG 1JO	O. R. Irvine
63.	King City Bakery P.O. Box 302, 40 King St. King City, Ont. LOG 1KO	Robert McLeod
64.	Kitchens of Sara Lee (Canada) Ltd. 379 Orenda Road Bramalea, Ontario.	Emil Seper 28 Parkend Avenue, Brampton Ontario. Gord R. Strachan 62 Ascot Avenue, Bramalea, Ontario. L6T 2P7
65.	Knechtel Milling Ltd. Box 219, Hanaver, Ontario.	James Webb, R.R. #3, Hanover A. L. Burrow, Box. 81, Hanover, Ont. Gerald Sottowski, 587, 17 Dane Hanover, Ont.
66.	Kraft Foods Limited 8600 Devonshire Rd. Town of Mount Royal, Quebec. H4P 2K9	R. M. Beaudry 1170 Lepine St., Montreal, P.Q. H4L 4N4 V. Daigneault 516 Filiatreault, Ste, Dorothee, P.Q.
67.	Lancia Brad Foods 60 Hook Ave., Toronto.	A. Allibone
68.	A. Lord 62 Ellins, Toronto, 9, Ont.	
69.	Lake View Dairy 185 Dunlop St. East Barrie, Ontario.	James Long
70.	Laura Secord Candy Shops Ltd. 1500 Birchmount Road Scarborough, Ontario.	Mrs. Bobi Vukmanovic 10 Brighton Ave., Toronto. Mr. Denis McGuire 315 Cliffwood Road, Willowdale, Ont.

No.	Name of Company & Address	Employees Name & Address
71.	T. J. Lipton Ltd. 307 Orenda Rd. Bramalea, Ont.	Bill Johnston G. A. Mitrovich
72.	Loblaws Ltd. Director of In Store Bakery 545 Lakeshore, Boulvard, Ont.	Joe Meyer
73.	Mead Johnson Belleville, Ontari9.	Goulon Harris
74.	Maple Leaf Mills Ltd. 43 Junction Rd., Toronto, Ontario.	William Manning
75.	Miles Laboratories Ltd. 77 Belfield Road Rexdale, Ontario.	Robert W. Nash D. G. Edson
76.	Ministry of Health 554 Main St. E., Hamilton, Ont.	A. Chiasson
77.	Morrison-Lamothe Roods Ltd. 95 Echo Drive Ottawa, Ont.	K. Visser J. Green
78.	Monarch Fine Foods Co. Ltd. 195 Belfield Rd. Rexdale, Ontario. M9W 1G9	Lynne Van Der Linden 2534 Spruce Needle Dr. Mississauga, Ontario.
79.	Mount Sinai Hospital 600 University Ave. Toronto, Ont.	J. R. Wolczuk, Chief Entineer
80.	McMaster Medical Centre 1400 Main St. W. Hamilton, Ontario.	Helen K. O'Connor
81.	McLarens Foods Ltd. 1721 Burlington St. E. Hamilton, Ontario.	Al Nield Leo Luter
82.	Hilton Hotel 68 Broad Oaks Drive Downsview , Ont.	H. Ackermond
83.	Nabisco, N. Y.	F. D. Hayman
84.	Nabisco Foods, Div. of Nabisco Ltd. 5651 Lewis Ave. Niagara Falls, Ont.	Roy E. Niven 6456 Maranda St., Niagara Falls, Ont. George A. Cudney 88 Ridgeway Road, Crystal Beach,Ont. Lorne E. Adams 5657 Hodgson Ave., Niagara Falls, Ont.

No.	Name of Company & Address	Employees Name & Address
85.	Niagara Regional Health Unit King St. at Fourth St. Welland, Ontario.	Ed. G. Meyer Brent Wood 38 Acadia Cresent St. Catharines, Ont.
86.	North York Public Health Dept. 5000 Yonge St. Willowdale, Ont. M2N 5V7	Ken Ramkeesoon Al McDougall Ted Korzeniecki Beauvais, Jacques F. J. Hendriks John Kearns Jim Craigie
87.	Ontario Ministry of Health 554 Main St. E. Hamilton, Ont.	Daniel Ayim
88.	MacMaster Medical Centre 1830 Main St. W. #811 Hamilton, Ont.	Jane Lackie
89.	Ogilvie Flour Mills Co. Ltd. P.O. Box 6069 Montreal 101, P.Q.	D. B. Weadon P.O. Box 6089, Montreal M. Hartmann P.O. Box 6089, Montreal G. Smith, - do-
90.	Ontario Research Foundation Sheridan Park, Ontario.	Chris Browne
91.	The Oshawa Group Limited 300 The East Mall Islington, Ontario. M9B 6B8	E. Tofflemire 10 Kidbrooke Cresc. Scarborough, Ont V. Calla 265 Brunswick Ave. Toronto, Ont. M5S 2M6
92.	PCO Services Limited 232 Norseman Street Toronto, Ontario. M8Z 2R4	W. Burr K. G. Spencer, Vice-President 15 Odessa, Etobicoke, Ont. Brian DeLaney, District Mgr. 29½ Yates Street, St Catherines, Ont
93.	Peek Frean (Canada) Ltd. 1200 O'Connor Drive Toronto, Ontario. M4B 2T7	J. F. Somers 1200 O'Connor Drive, Tor. Ont. A. G. Nevill - do -
94.	Peel Regional Health Unit 100 Dundas St. W. Mississauga, Ont.	Daivd A. Dorman
95.	Pepsi-Cola Canada Ltd. 350 Midwest Rd. Scarboro, Ont.	Rod Mury 22 Walmer Rd., Toronto, Ont.
96.	Perth District Health Unit 24 St. Andrew Street Stratford, Ont.	Bernd Muller

No.	Name of Company & Address	Employees Name & Address
97.	Pillsbury Canada Ltd. Midland, Ontario.	Jim Bales 400 Russell St., Midland, Ont. Jos Denis 692 Ottawa
98.	Procter & Gamble Burlington Street East Hamilton, Ontario.	G. Parket 75 Bold Street Hamilton, Ont.
99.	The Quaker Oats Company of Canada Ltd. Quaker Park Peterborough, Ontario.	L. G. Stewart 513 Arndon Avenue, Peterborough, Ont.
100.	Reckitt & Colman (Canada) Limited 2275 - 52 Avenue Lachine, Quebec H8T 2Y8	Paul Frey
101.	Regional Municipality of York Health Unit 22 Prospect St., Newmarket, Ont.	Larry Hancey Marty Todd
102.	Reid Milling (1969) Ltd. 27 Reid Drive Streetsville, Ontario.	Garnet Fu.
103.	Robin Hood Multifoods P.O. Box 190 Port Colborne, Ontario.	J. F. Bebbett 767 Sugarlane St., Port Colborne, Ontario. J. Palma 170 Olga Drive, Port Colborne, Ont.
104.	Salada Foods Ltd. Box 519 Alliston, Ont.	E. John Kleinikkink Box 866, Alliston, Ont.
105.	Salada Foods Ltd. 325 Humber College Blvd. Rexdale, Ontario.	Eobwer K. Palmer
106.	Scarborough General Hospital 3050 Lawrence Avenue East Scarborough, Ont.	Mrs. Elizabeth Hayes 2190 Lawrence Avenue E. Apt. 5, Scarborough, Ont. Mrs. Bernice Clark 12 Benshire Drive, Scarborough, Ont.
107.	Seven-up Canada Limited 12 Cranfield Rd. Toronto, Ontario.	D. J. MacKillop
108.	Silverwood Dairies Limited 588 Dupont Street Toronto, Ontario.	David G. Goslin 588 Dupont St., Tor.

No.	Name of Company & Address	Employees Name & Address
109.	Ogilvie Flour Mills Co. Ltd. Midland, Ontario. L4R 1L4	Gordon Smith
110.	Standard Brands Canada Ltd. 672 Dupont Street Toronto, Ont. M6G 1Z6	R. E. Berry 5 Elway Court, Toronto, Ont.
111.	Stange Canada Ltd. 3340 Orlando Drive Mississauga, Ontario. L4V 1C7	Don Awde 5 Flamingo Crescent, Bramalea, Ont. Ron Baker 1 Wainwright Rd. Islington, Ontario. M9A 2L6
112.	Sunny Drange Canada (19B) Ltd. 55 Torlake Crescent Toronto, Ontario.	Shanti B. Ghosh
113.	Swift Eastern Limited 30 Maybank Avenue Toronto, Ont. M6N 3S6	R. A. Blatz
114.	Trovan Chemicals 41 Racine Rd. Rexdale, Ontario.	Lorne D. McGolrick
115.	Toronto Board of Education 155 College St. Toronto, Ontario. M5T 1P6	Art Geddis R. R. #1, Bolton, Ontario. C. W. Taylor 6 Balaclava Drive Scarborough, Ontario.
116.	Union Carbide Canada Ltd. 123 Eglinton Ave. E. Toronto, Ontario.	D. L. Bonham
117.	University of Guelph Dept. of Consumer Studies Guelph, Ontario.	Dr. Mabel Sanderson
118.	University of Guelph Four Science Dept., Guelph, Ontario.	C. L. Duitschaever
119.	University of Guelph, Houskeeping Dept. Guelph, Ontario. N1G 2W1	Robert Douglas 12 Western Avenue, Guelph, Ont. Marcel O'Brien 174 Suffolk Street Guelph, Ontario.
120.	V/S Services Ltd. Queen Elizabeth Hospital 130 Dunn Ave., Toronto	S. Green 90 Tyndall Ave., Apt. 704, Tor. Ont.
121.	G. B. Wonder 57 Saman Ave., London, Ont.	Robert Morrow

No.	Name of Company & Address	Employees Name & Address
122.	Waterloo Regional Health Unit 850 King St. W. Kitchener, Ontario.	G. A. Stubbs 710 Elizabeth Ave., Cambridge, Ont. Ken Leonard 57 Westweed Dr. Apartment 301 Kitchener, Ontario.
123.	The Wellesley Hospital 160 Wellesley Street East Toronto, Ontario. M4Y 1J3, Ontario.	T.A. Kingsborough Director, Environmental Service Mr. G. R. Hill Director of Food Services
124.	Weston Bakeries Limited 100 University Ave., Suite #1110 Toronto, Ontario. M5J 1V6	A. Buttnor 19 Kilburn Place, Weston, Ont.
125.	Weston Bakeries Limited 530 Keele St. Unit 304 Toronto, Ontario. M6N 3C9	C. O. Gerbrandt
126.	Weston Bakeries Limited P.O. Box 1057 Sudbury, Ontario.	Howard Fleming 689 Churchill Ave., Sudbury Edward Marinier P.O. Box 92 Valcaron, Ontario.
127.	Weston Bakeries Limited 610 Dupont Street Toronto, Ontario. M6G 1Z2	Tony Matthews 79 Newstead Cres, Brampton, Ont. Luigi Pellegrini 21 Kendleton Drive, Rexdale, Ontario.
127.	Weston Bakeries Limited 560 Victoria St. N. Kitchener, Ontario.	F. Schlegel 31 Wayne Drive, Kitchener, Ontario. R. Jones,558 Fallingbrook Drive Waterloo, Ontario.
128.	Weston Foods Limited Colborne St., Brantford, Ontario.	A. W. Young 172 Forest Glen Cres., Kitchener, Ont.
129.	West Chemical Products Ltd. 325 Daleford Rd., Toronto, Ont.	Roy McGill 325 Daleford Rd., Tor., Ont.
130.	Wm. Neilson Ltd. 277 Gladstone Ave. Toronto, Ontario.	J. F. Nudgins T. G. Hrnsperger
131.	Wm. Wbigley JB Co. 1123 Leslie St. Don Mills, Ontario.	A. Casselman 190 Cosburn Ave., Don Mills Apt. 505, Ontario
132.	World's Finest Chocolate Campbellford Ontario.	Karl Howse 32, Front St. Campbellford, Ontario.

No.	Name of Company & Address	Employees Name & Address
133.	York Farms, Div. of Canada Packers Ltd. Brantford Road Brantford, Ontario.	Victor Casali R. R. #7 Brantford, Ontario.

PESTICIDES CONTROL

HEAD OFFICE	1 St. Clair Avenue West Toronto, Ontario	Tel: 965-2401 Area Code: 416
D.W. Wilson	Supervisor	
J.J. Onderdonk	Head Technical Support Unit	
D.L. MacKenzie	Biology & Aquatic Nuisance Specialist	
J.G. Kurys	Education, Training & Examination Co-Ordinator	
G. Finan	Technical Land Pest Control Specialist	
M.C. Wood	Structural Pest Control Specialist	
	Publications Officer	
R. LeRoy	Licensing Officer	

FIELD STAFF

CENTRAL REGION

N.E. Moore Regional Pesticide Specialist	150 Ferrand Drive, 7th Floor, Don Mills, Ontario. M3C 1H6	Tel: 424-3000 Ext. 202 or 204 Area Code: 416
T. O'Neill District Pesticide Specialist	SAME	SAME
D.E. Young District Pesticide Specialist	P.O. Box 937, 12 Fairview Road, Barrie, Ontario. L4M 4Y6	Tel: 726-1730 Area Code: 705
A.G. Carpentier District Pesticide Specialist	139 George Street, Peterborough, Ontario. K9J 3G7	Tel: 824-745-4601 Area Code: 705

WEST-CENTRAL REGION

A. Tewfik Regional Pesticide Specialist	C/O Canada Centre For Inland Waters, Box 5050, Room R230, Burlington, Ontario. L7R 4A6	Tel: 811-639-0061 Area Code: 416
H. Hoggarth District Pesticide Specialist	P.O. Box 473, 1 Robinson Street, Suite #9, Woolworth Building, Simcoe, Ontario. N3Y 4L5	Tel: 864-426-1940 Area Code: 519

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R. Miller District Pesticide Specialist	P.O. Box 219, Clyde Road, Cambridge (Galt), Ontario. N1R 5W6	Tel: 815-623-2080 Area Code: 519

NORTHEASTERN REGION

D.J. Mewett Regional Pesticide Specialist	Northgate Shopping Centre, 1500 Fisher Street, North Bay, Ontario. P1B 2H3	Tel: 843-476-1001 Area Code: 705
P. McCubbin District Pesticide Specialist	P.O. Box 1330, 46 Main Street, Timmins, Ontario. P4N 2V3	Tel: 865-264-9474 Area Code: 705

NORTHWESTERN REGION

G.R. Gammond Regional Pesticide Specialist	1821 Arthur Street, Thunder Bay, Ontario. P7C 1B7	Tel: 844-623-5591 Area Code: 705

SOUTHEASTERN REGION

D.A. Raddon Regional Pesticide Specialist	15 Victoria Avenue, Belleville, Ontario. K8N 1Z6	Tel: 827-962-9208 Area Code: 613
R.P. Cameron District Pesticide Specialist	2378 Holly Lane, Suite #204, Ottawa, Ontario. K1V 7P1	Tel: 821-521-3450 Area Code: 613

SOUTHWESTERN REGION

G.G. Roberts Soil & Crop Evaluator	985 Adelaide St. South, London, Ontario. N6E 1V3	Tel: 813-681-3600 Area Code: 519
D.C. Morrow District Pesticide Specialist	SAME	SAME
H.E. Collins District Pesticide Specialist	P.O. Box 237, 435 Grand Avenue West, Chatham, Ontario. N7M 5K3	Tel: 812-352-5107 Area Code: 519
B.T. Lobb District Pesticide Specialist	P.O. Box 688, Ont. Ministry of Agr. Food Building, Clinton, Ontario. NOM 1LO	Tel: 853-482-3428 Area Code: 519

TABLE OF CONTENTS